

WHAT IS CLAIMED IS:

- 1 1. A method executed in a computer based travel-
2 planning-system, comprises:
3 receiving trip segments;
4 determining constraints on sequences of flights between
5 the endpoints of the trip segments, the constraints derived
6 from properties of fares that can be used with the flights;
7 and
8 generating itineraries from flights using the
9 constraints; and
10 pricing the itineraries.
- 1 2. The method of claim 1 wherein the constraints are on
2 flights.
- 1 3. The method of claim 1 wherein the constraints are on
2 itineraries.
- 1 4. The method of claim 1 wherein the fares are fares
2 between endpoints of trip segments.
- 1 5. The method of claim 1 wherein the fares are fares
2 between points connected by single flights to endpoints of
3 trip segments.
- 1 6. The method of claim 1 wherein generating provides
2 itineraries for a complete trip.
- 1 7. The method of claim 1 wherein generating provides
2 itineraries separately for each trip segment.

1 8. The method of claim 1 wherein constraints are based
2 on fare routings.

1 9. The method of claim 1 wherein constraints are based
2 on fare carrier.

1 10. The method of claim 1 wherein constraints are based
2 on fare global indicator.

1 11. The method of claim 1 wherein constraints are based
2 on fare maximum permitted mileage.

1 12. The method of claim 1 wherein the constraints are
2 restrictions on individual flights used in itineraries.

1 13. The method of claim 1 wherein constraints are
2 constraints on airline and origin and destination triples.

1 14. The method of claim 1 wherein constraints are
2 restrictions on flight origin and destination.

1 15. The method of claim 1 further comprising:
2 choosing constraints based on fare price.

1 16. The method of claim 1 further comprising:
2 generating itineraries from flights without considering
3 constraints.

1 17. The method of claim 16 wherein pricing prices the
2 itineraries from flights by considering constraints and
3 wherein pricing further comprises:

4 pricing the itineraries generated without considering the
5 constraints; and
6 returning the priced itineraries.

1 18. The method of claim 1 wherein pricing further
2 comprises:

3 restricting pricing of itineraries based on the
4 constraints used to produce the itineraries.

1 19. The method of claim 1 wherein restricting pricing of
2 itineraries is based restrictions on the endpoints of fares
3 considered during pricing.

1 20. The method of claim 1 further comprising:
2 generating itineraries from flights without considering
3 constraints;
4 pricing the itineraries from flights without considering
5 constraints and with considering the constraints; and
6 returning the priced itineraries.

1 21. A computer program product residing on a computer
2 readable medium for producing itineraries comprises
3 instructions for causing a computer to:
4 receive trip segments;
5 determine constraints on sequences of flights between the
6 endpoints of the trip segments, the constraints derived from
7 properties of fares that can be used with the flights; and
8 generate itineraries from flights using the constraints;
9 and
10 price the itineraries.

1 22. The computer program product of claim 21 wherein the
2 constraints are on flights.

1 23. The computer program product of claim 21 wherein the
2 constraints are on itineraries.

1 24. The computer program product of claim 21 wherein the
2 fares are fares between endpoints of trip segments.

1 25. The computer program product of claim 21 wherein the
2 fares are fares between points connected by single flights to
3 endpoints of trip segments.

1 26. The computer program product of claim 21 wherein
2 generating provides itineraries for a complete trip.

1 27. The computer program product of claim 21 wherein
2 generating provides itineraries separately for each trip
3 segment.

1 28. The computer program product of claim 21 wherein
2 constraints are based on fare routings.

1 29. The computer program product of claim 21 wherein
2 constraints are based on fare carrier.

1 30. The computer program product of claim 21 wherein
2 constraints are based on fare global indicator.

1 31. The computer program product of claim 21 wherein
2 constraints are based on fare maximum permitted mileage.

1 32. The computer program product of claim 21 wherein the
2 constraints are restrictions on individual flights used in
3 itineraries.

1 33. The computer program product of claim 21 wherein
2 constraints are constraints on airline and origin and
3 destination triples.

1 34. The computer program product of claim 21 wherein
2 constraints are restrictions on flight origin and destination.

1 35. The computer program product of claim 21 further
2 comprising instructions to:
3 choose constraints based on fare price.

1 36. The computer program product of claim 21 further
2 comprising instructions to:
3 generate itineraries from flights without considering
4 constraints.

1 37. The computer program product of claim 21 wherein
2 instructions to price, prices the itineraries from flights by
3 considering constraints and wherein instructions to price
4 further comprises instructions to:
5 price the itineraries generated without considering the
6 constraints; and
7 return the priced itineraries.

1 38. The computer program product of claim 21 wherein
2 instructions to price further comprises instructions to:
3 restrict pricing of itineraries based on the constraints
4 used to produce the itineraries.

1 39. The computer program product of claim 21 wherein
2 instructions to price restricts pricing restrictions on the
3 endpoints of fares considered during pricing.

1 40. The computer program product of claim 21 further
2 comprises instructions to:
3 generate itineraries from flights without considering
4 constraints;
5 price the itineraries from flights without considering
6 constraints and with considering the constraints; and
7 return the priced itineraries.

1 41. Apparatus comprising:
2 a processor;
3 a memory for executing a computer program product; and
4 a computer readable medium storing the computer program
5 product for producing itineraries comprises instructions for
6 causing the processor to:
7 receive trip segments;
8 determine constraints on sequences of flights between the
9 endpoints of the trip segments, the constraints derived from
10 properties of fares that can be used with the flights; and
11 generate itineraries from flights using the constraints;
12 and
13 price the itineraries.

1 42. The apparatus of claim 41 wherein the constraints
2 are on flights.

1 43. The apparatus of claim 41 wherein the constraints
2 are on itineraries.

1 44. The apparatus of claim 41 wherein the fares are
2 fares between endpoints of trip segments.

1 45. The apparatus of claim 41 wherein the fares are
2 fares between points connected by single flights to endpoints
3 of trip segments.

1 46. The apparatus of claim 41 wherein constraints are
2 based on fare routings.

1 47. The apparatus of claim 41 wherein constraints are
2 based on fare carrier.

1 48. The apparatus of claim 41 wherein constraints are
2 based on fare global indicator.

1 49. The apparatus of claim 41 wherein constraints are
2 based on fare maximum permitted mileage.

1 50. The apparatus of claim 41 wherein constraints are
2 constraints on airline and origin and destination triples.

1 51. A computer program product residing on a computer
2 readable medium for producing itineraries comprises
3 instructions for causing a computer to:

4 receive trip segments;

5 determine geographic and airline constraints derived from
6 fare rules to control the manner in which flights are combined
7 prior to the evaluation of fare rules; and

8 generate itineraries by using the constraints.

1 52. The computer program product of claim 51 wherein the
2 constraints are on flights.

1 53. The computer program product of claim 51 wherein the
2 constraints are on itineraries.

1 54. The computer program product of claim 51 wherein
2 constraints are based on fare routings.

1 55. The computer program product of claim 51 wherein the
2 constraints are restrictions on individual flights used in
3 itineraries.

1 56. The computer program product of claim 51 wherein
2 constraints are constraints on airline and origin and
3 destination triples.

1 57. A method for producing itineraries comprises:
2 receiving trip segments;
3 determining geographic and airline constraints derived
4 from fare rules to control the manner in which flights are
5 combined prior to the evaluation of fare rules; and
6 generating itineraries by using the constraints.

1 58. The method of claim 57 wherein the constraints are
2 on flights.

1 59. The method of claim 57 wherein the constraints are
2 on itineraries.

1 60. The method of claim 57 wherein constraints are based
2 on fare routings.

1 61. The method of claim 57 wherein the constraints are
2 restrictions on individual flights used in itineraries.

1 62. The method of claim 57 wherein constraints are
2 constraints on airline and origin and destination triples.

1 63. A computer program product residing on a computer
2 readable medium for producing itineraries comprises
3 instructions for causing a computer to:
4 receive trip segments;
5 determine constraints on sequences of flights, between
6 the endpoints of the trip segments the constraints derived
7 from properties of fares that can be used with the flights;
8 and
9 generate itineraries constrained by multiple constraints
10 that are derived from a diverse set of fares in order to
11 increase the diversity of generated itineraries;
12 return at least some of the generated itineraries to a
13 user.

1 64. The computer program product of claim 63 wherein the
2 fares are chosen to include multiple airlines.

1 65. The computer program product of claim 63 wherein the
2 fares are chosen to include multiple origins.

1 66. The computer program product of claim 63 wherein the
2 fares are chosen to include multiple destinations.

1 67. The computer program product of claim 63 wherein the
2 fares are chosen to include multiple origin-destination pairs.

1 68. A method for producing itineraries comprises:
2 receiving trip segments;
3 determining constraints on sequences of flights, between
4 the endpoints of the trip segments the constraints derived
5 from properties of fares that can be used with the flights;
6 and
7 generating itineraries constrained by multiple
8 constraints that are derived from a diverse set of fares in
9 order to increase the diversity of generated itineraries;
10 returning at least some of the generated itineraries to a
11 user.

1 69. The method of claim 68 wherein the fares are chosen
2 to include multiple airlines.

1 70. The method of claim 68 wherein the fares are chosen
2 to include multiple origins.

1 71. The method of claim 68 wherein the fares are chosen
2 to include multiple destinations.

1 72. The method of claim 68 wherein the fares are chosen
2 to include multiple origin-destination pairs.

1 73. The method of claim 1 where fares are filtered based
2 on properties of the fare rules.

1 74. The method of claim 73 where fares fail if aspects
2 of the fare's rules are violated.

1 75. The method of claim 74 where the aspects are the
2 fare's effective and discontinue dates.

1 76. The method of claim 74 where the aspects are the
2 fare's rules that limit at least one of travel dates and
3 travel times.